

In re Patent Application of:
ROOZROKH ET AL.
Serial No. 10/620,552
Filing Date: July 16, 2003

In the Claims:

1. (CURRENTLY AMENDED) A method of manufacturing a diode subassembly used in rectifiers of engine-driven generators, wherein the assembly includes a diode cup, and semiconductor diode die and diode lead fitted therein, the method comprising the step of:

reflow soldering a semiconductor diode die and diode lead within a diode cup in an argon/hydrogen atmosphere with predominantly argon over hydrogen in volume and in an atmosphere of up to about 400°C.

2. (ORIGINAL) A method according to Claim 1, and further comprising the step of inserting solder preforms between the diode cup and semiconductor diode die and the diode lead and semiconductor diode die before reflow soldering.

3. (CURRENTLY AMENDED) A method according to Claim 1, and further comprising the step of reflow soldering within an argon/hydrogen atmosphere of about 80 percent argon and 20 percent hydrogen by volume.

4. (CANCELLED)

5. (ORIGINAL) A method according to Claim 1, and further comprising the step of reflow soldering under pressure to aid in forcing the semiconductor diode die, diode cup and diode lead together.

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6. (ORIGINAL) A method according to Claim 1, and further comprising the step of reflow soldering at a pressure up to about 60 pounds per square inch.

7. (ORIGINAL) A method according to Claim 1, and further comprising the step of reflow soldering with a lead-tin-indium solder.

8. (CURRENTLY AMENDED) A method according to Claim 1, wherein after the step of reflow soldering, comprises ~~the sep~~ the step of sealing the diode cup, semiconductor diode die and diode lead with a sealant.

9. (ORIGINAL) A method according to Claim 8, wherein the step of sealing comprises the step of sealing with an epoxy.

10. (ORIGINAL) A method according to Claim 1, and further comprising the step of inserting solder preforms between the diode cup and semiconductor diode die and the diode lead and semiconductor diode die.

Claims 11-31 (CANCELLED)

32. (CURRENTLY AMENDED) A method of manufacturing a diode subassembly used in rectifiers of engine-driven generators comprising the step of:

soldering a semiconductor diode die and diode lead within a diode cup in an argon/hydrogen atmosphere with predominantly

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argon over hydrogen in volume and in an atmosphere of up to about 400°C.

33. (CURRENTLY AMENDED) A method according to Claim 32 and further comprising the step of inserting a solder ~~perform~~ preform between the diode cup and semiconductor diode die before the step of soldering.

34. (CURRENTLY AMENDED) A method according to Claim 32 and further comprising the step of inserting a solder ~~perform~~ preform between the diode lead and semiconductor diode die before soldering.

35. (CURRENTLY AMENDED) A method according to Claim 32 wherein the step of soldering further comprises the step of soldering within an argon/hydrogen atmosphere of about 80 percent argon and 20 percent hydrogen by volume.

36. (CANCELLED)

37. (PREVIOUSLY PRESENTED) A method according to Claim 32 wherein the step of soldering further comprises the step of soldering with a lead-tin-indium solder.

38. (PREVIOUSLY PRESENTED) A method according to Claim 32 and further comprising the step of sealing the semiconductor diode die and diode lead within the diode cup with a sealant.

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39. (PREVIOUSLY PRESENTED) A method according to Claim 38 wherein the step of sealing further comprises the step of sealing with an epoxy.

40. (PREVIOUSLY PRESENTED) A method according to Claim 32 wherein the step of soldering further comprises the step soldering under pressure to aid in forcing the semiconductor diode die, diode cup and diode lead together.

41. (PREVIOUSLY PRESENTED) A method according to Claim 40 wherein the step of soldering under pressure further comprises the step of soldering at pressures up to about 60 pounds per square inch.

42. (PREVIOUSLY PRESENTED) A method according to Claim 32 wherein the step of soldering further comprises the step of reflow soldering the semiconductor diode and diode lead within the diode cup.